

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Row 44, Inc.	)	
	)	
Application for Special Temporary Authority for mobility testing of aircraft earth stations	)	File No. SES-STA-20080711-00928
	)	

**ORDER AND AUTHORIZATION**

**Adopted:** March 13, 2009

**Released:** March 13, 2009

By the Chief, Satellite Division, International Bureau:

1. In this order, we grant a request by Row 44, Inc. (Row 44) for Special Temporary Authority (“STA”) to operate up to twelve Aeronautical Mobile Satellite Service aircraft earth stations for testing, including in-flight testing, for a period of sixty days, commencing immediately, subject to conditions specified below.

2. In a license application<sup>1</sup> filed in May, 2008, Row 44 requested blanket operating authority for up to one thousand technically-identical aircraft earth stations that would transmit in the 14.05-14.47 GHz band and receive in the 11.7-12.2 GHz band. The terminals would provide two-way broadband communications for passengers and flight crew aboard commercial and private aircraft. The communications would be provided using leased transponders on three geostationary satellites: Horizon 1 at 127° West Longitude operated by Intelsat LLC, AMC-2 at 101° W.L. operated by SES Americom, Inc., and AMC-9 at 83° W.L., also operated by SES Americom.

3. On May 9, 2008, the Commission granted Row 44’s STA request for ground-based testing of a single fixed earth station.<sup>2</sup> On July 11, 2008, Row 44 filed the STA request at issue here. Row 44 requested authority to operate up to twelve aircraft earth stations for mobility testing for a period of sixty days. The tests would use the same operating frequencies and target satellites as requested in the underlying blanket license application. The test stations would be installed on commercial aircraft operated by Alaska Airlines and Southwest Airlines and on a private aircraft operated by Row 44. Row 44 proposed to use a hub facility in North Las Vegas, Nevada. This hub station would operate under the terms of an existing license issued to Hughes Network Systems. According to Row 44, the aircraft earth stations have the technical

<sup>1</sup> SES-LIC-20080508-00570. That application will be addressed in a future order.

<sup>2</sup> File No. SES-STA-20080508-00571. The STA for ground testing, initially granted for a period of sixty days, was successively extended at Row 44’s request. See File Nos. SES-STA-20080702-00877, SES-STA-20080903-01141, SES-STA-20081110-01465, and SES-STA-20090106-00004 (extending ground-test STA to March 11, 2009).

characteristics detailed in the pending blanket license application, as amended,<sup>3</sup> and would operate consistently with the terms of coordination agreements between the operators of the target satellites and operators of adjacent Ku-band satellites.

4. On February 6, 2009, Row 44 filed a copy of an agreement signed by Row 44 and the licensed operators of Ku-band satellites near Row 44's target satellites, namely, Intelsat, SES Americom, and Echostar, pertaining to information disclosure.<sup>4</sup> In the agreement, Row 44 promised to share the following information with the other signatories in connection with the proposed mobility testing:

- 1) the identity of all fixed locations and aircraft with an operational Row 44 remote terminal and associated software and hardware;
- 2) each satellite and associated transponder being used and the uplink and downlink frequencies employed;
- 3) the dates, approximate times, and origination/destination airport of each flight by testbed aircraft identified pursuant to item 1;
- 4) details of testing of satellite hand-off in Lombard, Illinois;
- 5) specific satellite hand-off criteria based on aircraft location;
- 6) dates, times, and other details of the test schedule to enable the signatory satellite operators to monitor the testing;
- 7) test log data pertaining to antenna mispointing and misorientation and the aircraft maneuvers that cause the mispointing and misorientation; and
- 8) such other data or summaries, as reasonably agreed upon by the signatories, which may be needed to evaluate antenna performance.

Row 44 also agreed to cooperate with the other signatories to measure any adjacent satellite interference from test operation, both under normal flight conditions and when testbed aircraft are put through maneuvers intended to cause excessive antenna misorientation. Further, Row 44 stipulated in the agreement that it would submit test results to the Commission, if requested to do so by the Commission, under a request for confidential treatment no later than thirty days after the end of the sixty-day STA period.

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<sup>3</sup> See letter dated Sept. 11, 2008 from David S. Keir, Counsel to Row 44, Inc., to Helen Domenici, Chief, International Bureau, referencing File Nos. SES-AMD-20080819-01074, SES-AMD-20080829-01117, and SES-AMD-20080619-00826.

<sup>4</sup> Attachment A to letter dated Feb. 6, 2009 from David S. Keir, Counsel to Row 44, Inc., to Marlene H. Dortch, FCC Secretary. In the context of the blanket license application proceeding, Row 44 filed letters from these three satellite operators supporting its STA request. See letters submitted with SES-AMD-20090115-00041, filed Jan. 15, 2009. Intelsat is the licensed operator of Galaxy 28, at 89° W.L., which is within six degrees of SES Americom's AMC-9. Intelsat also operates Galaxy 3C at 95° W.L., Galaxy 19 at 97° W.L., and Galaxy 16 at 99° W.L., which are within six degrees of SES Americom's AMC-2 satellite. SES Americom is the licensed operator of AMC-21 at 125° W.L., which is within six degrees of Intelsat's Horizon 1 satellite. Echostar is the licensed operator of Echostar 9 at 121° W.L., which is also within six degrees of Horizon 1.

5. ViaSat, Inc. (ViaSat) objected to Row 44's STA request.<sup>5</sup> ViaSat contended that Row 44 should not be allowed to conduct airborne tests because it has not demonstrated that its proposed aircraft earth stations can operate without causing harmful interference to satellites adjacent to Row 44's target satellites. ViaSat also contended that Row 44 has not disclosed relevant data from ground-based testing and should not be allowed to conduct in-flight testing unless it places that data in the record. ViaSat maintained that, in the event the Commission grants Row 44's request, it should require Row 44 to make the test data publicly available. ViaSat asserted that the STA request is deficient because Row 44 has not specified the method it would use to assess antenna pointing accuracy. ViaSat also argued that logging of the "approximate" times of testbed flights is inadequate, and that Row 44 should precisely log the time, origin, and destination of each flight and should also log Inertial Reference Unit data regarding heading, altitude, and speed at least once per minute. Next, ViaSat contended that use of a single device on an aircraft flown by Row 44 would suffice for purposes of technical testing, and that there is no justification for testing with as many as eleven additional terminals providing service aboard commercial passenger aircraft. Finally, ViaSat argued that the acquiescence of the adjacent satellite operators is not conclusive and that the Commission has an obligation to act based on its own technical evaluation.

6. Based upon an evaluation of the facts and circumstances, we conclude that granting the STA request would serve the public interest by facilitating assessment and resolution of concerns regarding interference that might result from full-scale operation as proposed in Row 44's underlying license application. We reach that conclusion because the operators of the satellites that would be primarily affected by any interference caused by operation of Row 44's aircraft earth stations – that is, the satellites within six longitudinal degrees of Row 44's three target satellites – have indicated that testing would be appropriate, and have participated in formulation of the test plan. Furthermore, there is no indication in the record that ViaSat's current operations could suffer interference from the proposed testing. For these reasons, we grant the special temporary authorization subject to conditions, including a requirement that Row

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<sup>5</sup> Letter dated Feb. 9, 2009 from John P. Janka and Jarrett S. Taubman, Counsel for ViaSat, Inc., to John Giusti, Acting Chief, International Bureau. *Also see* letter dated Aug. 8, 2008 from John P. Janka and Jarrett S. Taubman to Marlene H. Dortch; letter dated Sept. 18, 2008 from John P. Janka and Jarrett S. Taubman to Helen Domenici, Chief, International Bureau; letter dated Sept. 24, 2008 from John P. Janka and Jarrett S. Taubman to Marlene H. Dortch; letter dated Sept. 24, 2008 from David S. Keir to Marlene H. Dortch; letter dated Sept. 26, 2008 from David S. Keir to Marlene H. Dortch; letter dated Oct. 1, 2008 from John P. Janka and Jarrett S. Taubman to Marlene H. Dortch; letter dated Jan. 22, 2009 from David S. Keir to Marlene H. Dortch; letter dated Jan. 24, 2009 from John P. Janka and Jarrett S. Taubman to Helen Domenici; letter dated Jan. 26, 2009 from David S. Keir to Marlene H. Dortch; letter dated Jan. 29, 2009 from John P. Janka and Jarrett S. Taubman to Marlene H. Dortch; letter dated Feb. 3, 2009 from David Blair, Senior Vice President, Space Programs and Operation, Echostar Corporation, Martin Kits van Heyningen, President and Chief Executive Officer, KVH Industries, Inc., and Daryl T. Hunter, Director, Regulatory Affairs, ViaSat, Inc. to John Giusti; letter dated Feb. 6, 2009 from John P. Janka and Jarrett S. Taubman to Marlene H. Dortch; letter dated Feb. 10, 2009 from David S. Keir to Marlene H. Dortch; letter dated Feb. 11, 2009 from David S. Keir to Marlene H. Dortch; letter dated Feb. 13, 2009 from John P. Janka and Jarrett S. Taubman to John Giusti; letter dated Feb. 19, 2009 from David S. Keir to Marlene H. Dortch; and letter dated Feb. 25, 2009 from John P. Janka and Jarrett S. Taubman to Marlene H. Dortch.

44 submit test results to the Commission.<sup>6</sup>

7. Accordingly, IT IS ORDERED that the application of Row 44 for Special Temporary Authority for mobile operation of up to twelve Aeronautical Mobile Satellite Service aircraft earth stations for testing, including in-flight testing, IS GRANTED for a period of sixty days, subject to the following conditions:

(a) Aircraft earth stations shall not be operated while the aircraft is on the ground or within 55 meters of the ground unless appropriate safety protocols are in place to ensure that persons having access to areas within 55 meters of the antenna are not exposed to radiofrequency energy in excess of the maximum permissible limits specified in 47 C.F.R. § 1.1310. The exterior surface of the antenna shall be prominently marked with a sign warning of the potential for exposure to high levels of radiofrequency energy.

(b) Row 44 shall not cause harmful interference to, and shall not claim protection from, any other lawfully operating station. In the event harmful interference results from operation pursuant to this authorization, Row 44 shall cease operations immediately upon notification of such interference, and shall immediately inform the Federal Communications Commission, in writing, of the incident.

(c) Operation pursuant to this authorization shall be in compliance with the terms of Row 44's coordination agreements with the National Science Foundation and the National Aeronautics and Space Administration pertaining to operation of aircraft earth stations in the Ku-Band.

(d) Row 44 shall fulfill its obligations under the letter agreement with adjacent satellite operators that Row 44 filed with the Commission on February 6, 2009 and shall submit to the Commission a detailed written report on the results of technical testing pursuant to this authorization no later than 90 days after the release of this order.

(e) Within 30 days following release of this order, Row 44 shall submit to the Commission, and to the signatories of the letter agreement filed on February 9, 2009, a detailed report on ground-based testing conducted pursuant to the Special Temporary Authority initially granted on May 9, 2008 (Call Sign E080100). The report shall include test data pertaining to antenna mispointing and a description of test procedures.

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<sup>6</sup> In the event that Row 44 believes that some or all of the test information should be shielded from public disclosure, it may request that such information be treated as confidential. We will review any such request pursuant to the requirements of Section 0.459 of the Commission's rules, 47 C.F.R. § 0.459, and the Commission's *Confidentiality Policy Order*. See *Examination of Current Policy Concerning the Treatment of Confidential Information Submitted to the Commission, Report and Order*, GC Docket No. 96-55, 13 FCC Rcd 24816 (1998) (*Confidentiality Policy Order*).

8. This authorization is not one relating to an “activity of a continuing nature” for purposes of 47 C.F.R. § 1.62 and 5 U.S.C. § 558(c).

9. Row 44 is afforded thirty days from the date of the release of this order and authorization to decline this authorization as conditioned. Failure to respond within that period will constitute formal acceptance of the authorization as conditioned.

10. This Order is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective upon release.

FEDERAL COMMUNICATIONS COMMISSION

Robert G. Nelson  
Chief, Satellite Division  
International Bureau